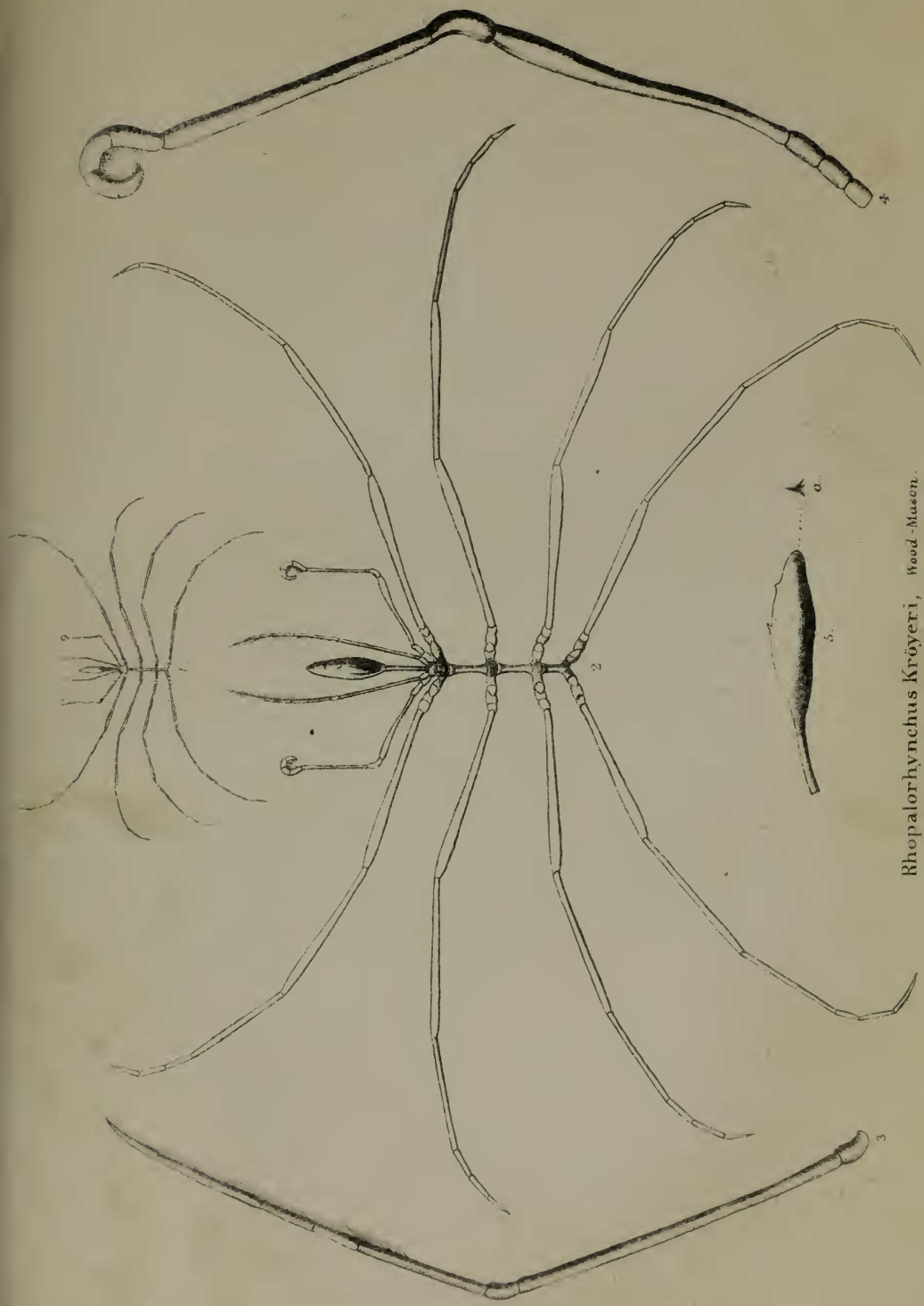




Rhopalorhynchus Kröyeri, Wood-Mason.

omnino deflexo; *basi circa umbilicum rotundate subangulata, similariter costulata, costulis usque ad peripheriam extensis*; *apertura fere horizontaliter deflexa, transversim rotundate elliptica, margine dilatato fere undique libero, ad angulum umbilici angustissime adnato, circumdata*. *Diam. maj. 13·3, d. min. 11·2, altitudo totius testæ 6*; *altitudo apert. cum peristomate 5·5, ejusdem latitudo 6·8 m.m.*

Hab.—Belgaom, India occidentali.

The present species has to be placed in close proximity to *T. crassicostata*, and is as closely allied to it as this is to *T. fallaciosa*. It differs very markedly from *crassicostata* by its more distinctly orbicular and depressedly planorboid shape, by a well marked, smoother and thinner, peripheral keel on the last whorl, by a more inflated and towards the middle more contracted base, it being angular round the umbilicus, and by a considerably more deflected aperture.

In a former paper* I expressed a doubt about *H. fallaciosa*, *ruiginosa*, and *nilghirica* belonging to the genus *Trachia*, as originally proposed by Albers. I observe, however, in well preserved specimens, that all of them possess the peculiar granular structure which is so characteristic of *Trachia*. *T. crassicostata* and *Evotiei* must now be added to the list of these closely allied Western Indian species.



ON RHOPALORHYNCHUS KRÖYERI, A NEW GENUS AND SPECIES OF PYCNOGONIDA,—by JAMES WOOD-MASON, of Queen's College, Oxford.

[Received and read May 7th, 1873.]

(With plate XIII.)

Much difference of opinion has prevailed with regard to the systematic position of the *Pycnogonida*, as to whether they should be classed with the Crustacea or with the Arachnida. By one set of naturalists, including Johnston, Milne-Edwards, Quatrefages, Kröyer, and Dana, they have been placed with the Crustacea; by another—including Latreille, Erichson, Gerstaecker and Huxley who separates them, as well as the Tardigrada and Pentastomida, from the typical Arachnida (Spiders, Mites and Ticks) as an aberrant order,—with the Arachnida. Dr. Anton Dohrn† who has recently studied the embryology of these animals finds that they are in no way related to the Arachnida, that they resemble the Crustacea in having a naupliiform first developmental stage, but that from this point the course of development ceases to exhibit anything in common with that of the Crustacea; under these circumstances I have thought it better to call the *cheli-*

* Journ. A. S. B., Vol. XL, Part II, p. 224.

† Jenaische Zeitschrift, 1869.

ceræ, palps, and accessory legs (= mandibles, and 1st and 2nd pairs of maxillæ of Kröyer) of those who range the *Pycnogonida* with the Arachnida, *the first, second and third pairs of cephalic appendages* respectively, thus avoiding the use of terms implying affinities and homologies that may not in reality exist.

RHOPALORHYNCHUS,* gen. nov. Wood-Mason.

Corpus lineare, gracillimum, annulis thoracis perdistinctis, cylindricis, utrimque dilatatis, processibusque lateralibus magnis, obconicis. *Rostrum* uniarticulatum, elongatissimum (corporis longitudinem pæne æquans), clavatum, ore triradiato. *Annulus oculiger* in collum vix coarctatus. *Appendices cephalicæ primi paris* absunt. *App. ceph. secundi paris* tenuissimæ, rostro longiores, novemarticulatæ, articulis secundo tertioque elongatis; *app. ceph. tertii paris* paulo longiores, ex decem confectæ articulis,—quorum tertius quintusque sunt elongatissimi, terminalesque quatuor prehensiles ac margine interiori serrati ciliatique—in utroque adsunt sexu; appendices utriusque paris, secundi ad tertium, tertii ad quartum articulum, sunt geniculatæ. *Tuberculus oculiger* in postica annuli parte est situs. *Pedes* gracillimi, inermes, equales, corpore (rostro incluso) duplo longiores, unguibus auxiliaribus armati sunt nullis. *Abdomen* uniarticulatum, obtuse-conicam, perbreve, vix distinguendum.

RHOPALORHYNCHUS KRÖYERI, n. sp.

Body linear, smooth. The rostrum is almost as long as the rest of the body, moveably articulated to the middle of the anterior end of the oculigerous somite, slender and filiform nearly to its middle whence it expands and finally narrows to its obtuse extremity; when examined in profile, the convex upper contour of the expanded portion is seen to carry two minute forwardly-directed spines, the one behind the other in the middle line. The mouth is situated at the extremity of the rostrum and has the form of a triradiate slit, the three slits being so disposed that a circle described from the point in which they meet so as to pass through their free extremities would be by them divided into three equal sectors. The ocular tubercle is erect, occupies the posterior half of the segment on which it is placed, and has the form of a short cylinder surmounted by a minute cone, the eyes being situated partly on the cylinder and partly on the cone at points corresponding, as usual, to the extremities of the arms of a St. Andrew's cross. A very distinct crescentic suture, bounding the base of the ocular tubercle posteriorly and curving forwards and outwards so that, if produced far enough, it would pass

* ῥόπαλον, clava; ῥύγχος, rostrum.

out just in front of the first pair of legs, divides the oculigerous from the first thoracic somite.

The *cephalic appendages of the first pair* are absent. Those of the *second pair* are about $1\frac{2}{3}$ times as long as the rostrum with which they lie in the same horizontal line, being articulated one on each side of it to the anterior end of the oculigerous somite, are filiform, excessively slender, and composed of nine joints. The first joint is subglobular, being nearly as broad as long, much broader than any of the succeeding joints; the second greatly elongated and slightly expanded at the apex; the third is very short and slightly curved; the fourth is greatly elongated, but not so much so as the second; the fifth is shorter than either of the four equal terminal joints which, together with the fifth and the distal half of the fourth, are fringed with short and very delicate cilia. Those of the *third pair* are also extremely slender, are articulated, a little posteriorly and internally to the second pair, to minute processes springing from the ventral arc of the oculigerous somite and meeting in the middle line. They are composed of ten joints, of which the first is minute, the two next equal and cylindrical, the third greatly elongated and just perceptibly expanded at the apical end; the fourth short, scarcely longer than the second of the two basal joints, and curved; the fifth is likewise greatly elongated, but more expanded at the apex and longer than the third; the four terminal joints are short, slightly decrease in length from the first to the last which comes suddenly to a subacute incurved point forming a sort of claw, are curved, fringed on their inner and concave margins with cilia and minute spinules, and capable of being coiled tightly together so as to form a prehensile organ.

Both pairs of appendages are elbowed at a short joint, intercalated between two long ones, *viz.*, the second pair between the 2nd and 4th, the third between the 3rd and 5th joints.

In many other species the terminal joints of the third pair of cephalic appendages (*pedes accessorii*) will probably be found to be similarly modified as a prehensile organ; an examination of O. F. Müller's faithful figures of *Nymphon grossipes*, Fabr. in the *Zoologica Danica** would, in fact, alone suffice to show the existence of such a modification in that species, even if Kröyer† had not described it in his diagnoses of the genera *Nymphon* and *Zetes*, without, however, offering any interpretation of the structure.

The *oculigerous somite* has its anterior margin straight, and is but faintly constricted in front of the eye-tubercle.

The *first thoracic somite*, if its distinctness from the oculigerous somite be admitted, is very short. Of the remaining somites, the second and third are subequal, the former being if anything the longer; are as perfectly cylindrical,

* Op. cit., pl. exix, figs. 5 et 8.

† Naturhist. Tidssk., 1844, pp. 108 et 116.

and nearly as long as, but slightly stouter than, the filiform proximal moiety of the rostrum; and are suddenly expanded at their articular ends, each somite presenting the appearance of a cylinder with a greatly truncated cone affixed by its truncated surface to each end. The fourth and last somite is scarce half the length of those that precede it, and is similarly expanded at its anterior end only. From the sides of the expansions at the posterior extremity of the 2nd and 3rd spring two somewhat inflated outwardly-directed, obconic processes which might, at first sight, be mistaken for the first of the basal joints of the legs from their close similarity to these, but which are in reality one with the somite from which they arise: precisely similar processes carry the legs both of the first and of the last somite in which, however, they diverge like the arms of the letter Y. Wedged in between the roots of these processes of the last somite and the posterior boundary of its ventral arc, lies a minute, obtusely-conical tubercle with a large circular (anal) aperture at its extremity. This is the abdomen, a very evident, though rudimentary, structure in most *Pycnogonida* and even biarticulate in one species (in *Zetes hispidus*, Kröyer), but here so reduced in size as to be quite invisible from above, and only demonstrable with difficulty from below whence it appears, in ordinary positions, under the microscope as a convex, ovoidal or heart-shaped plate. It, moreover, looks downwards and slightly backwards, instead of upwards and backwards or directly backwards as it usually does.

The legs are long, slender, simple, equal in length, rather more than twice as long as the body including the rostrum, and are composed of eight joints, terminated by a weak, slightly curved claw. Their three basal joints are as broad as long, equal, and almost globular; the fourth is club-shaped at the distal end; the fifth is all but as long as the fourth and, with the remaining joints, perfectly filiform; the sixth is shorter and about twice the length of the two last together; these are subequal.

Length of the body including the rostrum,	13 mm.
" " legs,	26 mm.
" " 2nd pair of cephalic appendages,	10 mm.
" " 3rd " " " "	12 mm.

From the linear form of the body and the slenderness of the legs, I conclude that my specimen is a male, a conclusion by no means invalidated by the presence of the third pair of cephalic appendages, which, being apparently invariably developed in both sexes throughout several genera, (*Nymphon*, etc.) consequently possesses no value in the determination of questions of sex.

Hab.—Dredged by the writer at Port Blair, Andaman Islands, in 25 fathoms of water, at which depth the bottom was clothed with a dense

tangle of delicate, filamentous algæ so closely resembling the animal in point of colour and form, that the latter was with difficulty distinguishable.

In conclusion, I dedicate the first species of *Pycnogonida* hitherto discovered in these seas to the memory of the illustrious Danish naturalist whose name is so indissolubly connected with the history both of the *Pycnogonida* and of the lower Crustacea.

Explanation of Plate XIII.

- Fig. 1. *Rhopalorhynchus Kröyeri*, nat. size.
 Fig. 2. The same greatly enlarged.
 Fig. 3. A cephalic appendage of the second pair, greatly enlarged.
 Fig. 4. " " " " third " "
 Fig. 5. Rostrum seen from the side " "
 a = mouth.

ALGÆ* COLLECTED BY MR. S. KURZ IN ARRACAN AND BRITISH BURMA,
 DETERMINED AND SYSTEMATICALLY ARRANGED by DR. G. ZELLER,
High Councillor of Finance in Stuttgart.

(Communicated by Mr. Kurz.)

[Received 3rd May; read 4th June, 1873.]

DIATOMACEÆ.†

*1. *PODOSIRA KURZII*, Z., n. sp.

Stipiti brevi cylindrico adnata; cellulis sphæricis, v. oblongis et diametro paulo longioribus; 1/175 ad 1/150 lin. crassis; 2 et pluribus isthmo brevi concatenatis, lævibus, valvulis ad commissuræ margines nodulis binis minutis instructis. Arracan, Akyab, in rupibus marinis submersis (3280, 3283.)

CHROOCOCCACEÆ.

*2. *CHROOCOCCUS MINOR*, Ng. (*Protooccus minor*, Kg.).

Pegu, Elephant-point, in rhizophoretis ad corticem *Sonneratiæ apetalæ*. (3277).

* The arrangement is according to Rabenhorst's *Flora Europea Algarum*, that of the sea weeds according to Kützing's *Species Algarum*. The numbers within brackets refer to Mr. Kurz's collections. Those species marked by an asterisk are new additions to Burmese phycology (see a paper on Burmese Algæ by the late Dr. G. von Martens, Journ. A. S. B., Vol. XL., 1872, p. 461 sq.)

† The diatoms from Burmah (about 60 or more species) are not yet distributed; Dr. L. Rabenhorst of Dresden has, however, been kind enough to undertake the determination of them. (S. Kurz.)